

**DEVELOPMENT OF ACTIVE EDIBLE COATING
SPRAY AS A PACKAGING STRATEGY FOR FRESH
STRAWBERRIES USING GREEN TEA EXTRACT**

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ABSTRACT

The maintenance of the quality of fresh produce is still a major challenge for the producers. The most important quality attributes contributing to the marketability of fresh fruit include appearance, nutritional value and microbiological safety. During handling, storage and transportation, fresh products start to dehydrate, deteriorate, and lose appearance, flavour and nutritional value which will lead to high postharvest losses. Edible coatings can provide an alternative to extend fresh fruit's postharvest life. The main objective of this research is to develop and evaluate active edible coating spray as a packaging strategy for fresh strawberries in order to reduce the postharvest losses and extend the shelf life of the fruit. The product was prepared by solubilizing carboxymethyl cellulose powder (0.75 % w/v), glycerol (2 % (v/v)) and Green tea concentrate (14 % v/v) in distilled water at 80 °C and stirring by using magnetic stirrer. In this study, coating was used directly on the fruit surface and then stored at refrigerated condition (7.3 °C and 25.3 % RH) upto 15 days. The effect of green tea incorporated carboxymethyl cellulose edible coating spray on selected sensory, physio-chemical and microbiological properties of strawberries were investigated. During the storage period, edible coating significantly reduces the weight loss ($p = 0.000$) and improves visual quality of the fruits. According to the results, there were no significant differences observed in pH of the fruit compared with the control ($p = 0.08$). Titratable acidity and total soluble solids of the coated fruits are significantly higher compared to the control sample during the storage period ($p < 0.05$). The developed fruit coating spray solution had significantly reduce the total plate count and yeast and mold count of the stored fruits during the storage period ($p < 0.05$). The product had showed antifungal activity against *Botrytis cinerea*. Therefore, it can be concluded that green tea incorporated edible coating spray is effective for strawberries' shelf life extension compared with control.

Key words: Edible coating, Green tea, Postharvest, Strawberry